

Claims

1. A tubeless actuator, comprising:

a frame;

a primary plate disposed within the frame;

a secondary plate disposed within the frame opposite the primary plate; and

a bobbin disposed within the frame between the primary plate and the secondary plate; and

wherein the bobbin is keyed to the secondary plate to maintain alignment between the bobbin and the secondary plate.
2. The tubeless actuator of Claim 1, further comprising:

a plunger slidably disposed within the bobbin; and

wherein the plunger slides in direct contact with the bobbin.
3. The tubeless actuator of Claim 2, further comprising:

a secondary air gap established between an inner wall established by the secondary plate and an outer wall established by the plunger.

4. The tubeless actuator of Claim 3, wherein the plunger defines a distal end and the tubeless actuator further comprises:
an annular notch established around an outer periphery of the distal end of the plunger.
5. The tubeless actuator of Claim 4, further comprising:
a frusto-conical spring disposed around the distal end of the plunger; and
wherein the frusto-conical spring engages the annular notch.
6. The tubeless actuator of Claim 3, further comprising:
an annular rib extending from the bobbin;
an annular groove established by the secondary plate; and
wherein the annular rib engages the annular groove to maintain alignment between the secondary plate and the bobbin.
7. The tubeless actuator of Claim 3, further comprising:
a central bore established by the bobbin;
a central hub extending from the secondary plate; and
wherein the central hub engages the central bore to maintain alignment between the secondary plate and the bobbin.

8. The tubeless actuator of Claim 3, further comprising:
 - at least one wedge-shaped protrusion extending from the bobbin;
 - at least one wedge-shaped opening established by the secondary plate; and
 - wherein the wedge-shaped protrusion engages the wedge-shaped opening to maintain alignment between the secondary plate and the bobbin.
9. A carbon canister purge valve for a motor vehicle, comprising:
 - a valve body;
 - an inlet passage established by the valve body;
 - an outlet passage established by the valve body, the outlet passage being in fluid communication with the inlet passage;
 - a tubeless actuator disposed within the valve body; and
 - wherein the tubeless actuator is energizable to block the flow of fluid between the inlet passage and the outlet passage.

10. The valve of claim 9, wherein the tubeless actuator, comprises:
- a frame;
 - a primary plate disposed within the frame;
 - a secondary plate disposed within the frame opposite the primary plate; and
 - a bobbin disposed within the frame between the primary plate and the secondary plate; and
- wherein the bobbin is keyed to the secondary plate to maintain alignment between the bobbin and the secondary plate.
11. The valve of Claim 10, wherein the tubeless actuator further comprises:
- a plunger slidably disposed within the bobbin; and
- wherein the plunger slides in direct contact with the bobbin.
12. The valve of Claim 11, wherein the tubeless actuator further comprises:
- a secondary air gap established between an inner wall established by the secondary plate and an outer wall established by the plunger.

13. The valve of Claim 12, wherein the plunger defines a distal end and the tubeless actuator further comprises:

an annular notch established around an outer periphery of the distal end of the plunger.

14. The valve of Claim 13, wherein the tubeless actuator further comprises:

a frusto-conical spring disposed around the distal end of the plunger; and

wherein the frusto-conical spring engages the annular notch.

15. The valve of Claim 12, wherein the tubeless actuator further comprises:

an annular rib extending from the bobbin;

an annular groove established by the secondary plate; and

wherein the annular rib engages the annular groove to maintain alignment between the secondary plate and the bobbin.

16. The valve of Claim 12, wherein the tubeless actuator further comprises:

a central bore established by the bobbin;
a central hub extending from the secondary plate; and
wherein the central hub engages the central bore to maintain
alignment between the secondary plate and the bobbin.

17. The valve of Claim 12, wherein the tubeless actuator
further comprises:

at least one wedge-shaped protrusion extending from the
bobbin;

at least one wedge-shaped opening established by the
secondary plate; and

wherein the wedge-shaped protrusion engages the wedge-
shaped opening to maintain alignment between the secondary plate
and the bobbin.

18. A tubeless actuator, comprising:

a frame;

a primary plate disposed within the frame;

a secondary plate disposed within the frame opposite the
primary plate;

a bobbin disposed within the frame between the primary plate and the secondary plate;
a plunger slidably disposed within the bobbin; and
wherein the plunger slides in direct contact with the bobbin.

19. The tubeless actuator of Claim 18, further comprising:
a secondary air gap established between an inner wall established by the secondary plate and an outer wall established by the plunger.

20. The tubeless actuator of Claim 19, wherein the plunger defines a distal end and the tubeless actuator further comprises:
an annular notch established around an outer periphery of the distal end of the plunger.

21. The tubeless actuator of Claim 20, further comprising:
a frusto-conical spring disposed around the distal end of the plunger; and
wherein the frusto-conical spring engages the annular notch.

22. The tubeless actuator of Claim 19, further comprising:

an annular rib extending from the bobbin;
an annular groove established by the secondary plate; and
wherein the annular rib engages the annular groove to
maintain alignment between the secondary plate and the bobbin.

23. The tubeless actuator of Claim 19, further comprising:
a central bore established by the bobbin;
a central hub extending from the secondary plate; and
wherein the central hub engages the central bore to maintain
alignment between the secondary plate and the bobbin.

24. The tubeless actuator of Claim 19, further comprising:
at least one wedge-shaped protrusion extending from the
bobbin;
at least one wedge-shaped opening established by the
secondary plate; and
wherein the wedge-shaped protrusion engages the wedge-
shaped opening to maintain alignment between the secondary plate
and the bobbin.